

Performance of Community Banks in Good Times and Bad Times: Does Management Matter?

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ABSTRACT

Community banks have long played an important role in the U.S. economy, providing loans and other financial services to households and small businesses within their local markets. In recent years, technological and legal developments, as well as changes in the business strategies of larger banks and non-bank financial service providers, have purportedly made it more difficult for community banks to attract and retain customers, and hence to survive. Indeed, the number of community banks and the shares of bank branches, deposits, banking assets, and small business loans held by community banks in the U.S. have all declined substantially over the past two decades. Nonetheless, many community banks have successfully adapted to their changing environment and have continued to thrive. This paper uses data from 1993 through 2011 to examine the relationships between community bank profitability and various characteristics of the banks and the local markets in which they operate. Bank characteristics examined include size, age, ownership structure, management quality, and portfolio composition; market characteristics include population, per capita income, unemployment rate, and banking market structure. We find that community bank profitability is strongly positively related to bank size; that local economic conditions have significant effects on bank profitability; that the quality of bank management matters a great deal to profitability, especially during times of economic stress; and that small banks that make major shifts to their lending portfolios tend to be less profitable than other small banks.

Introduction

Community banks have long played an important role in the U.S. economy, providing loans and other financial services to households and small businesses within their local markets. In recent years, technological and legal developments, as well as changes in the business strategies of larger banks and non-bank financial service providers, have purportedly made it more difficult for community banks to attract and retain customers, and hence to survive. Indeed, the number of community banks and the shares of bank branches, deposits, banking assets, and small business loans held by community banks in the U.S. have all declined substantially over the past two decades. Nonetheless, many community banks have successfully adapted to their changing environment and have continued to thrive. As of year-end 2012, there were still nearly 6,000 banks with less than \$1 billion in assets (a standard criterion for defining the term “community bank”) operating in the United States.

The recent U.S. financial crisis took a heavy toll on community banks. Since the beginning of 2008, nearly 500 depository institutions have failed, with the vast majority of them being community banks; and as of June 30, 2013, several hundred community banks remained on the FDIC’s problem institution watch list.¹ The costs of even a small bank failure extend beyond the scope of the bank’s owners and the FDIC insurance fund. Most notably, a bank’s failure disrupts its customers’ banking relationships. Banking relationships are particularly important to small business customers, who generally do not have access to the broader capital markets, and for whom credit extension is often based on private information acquired through repeated interactions over time. Furthermore, because small businesses typically obtain many of their financial services from local banks, they may have few alternatives available if their existing bank disappears. Households also tend to obtain some types of financial services (e.g., checking accounts, savings accounts, and some types of consumer loans) from local banks. As such, they too may face limited options in the event that their existing bank fails. Finally, bank failures can have significant and long-lasting effects on market structure, and hence the competitive environment, in local banking markets.

¹ The FDIC defines problem institutions as “those institutions with financial, operational, or managerial weaknesses that threaten their continued financial viability.” FDIC Quarterly Banking Profile, 2010, Volume 4, No. 1, p. 26.

The purpose of this research is to explore the factors associated with differences in performance among small banks. Potential causes of differences in small bank performance can be divided into two broad categories: those that are exogenous to the control of bank managers and those that reflect the decisions or actions of bank management. Because small banks tend to have portfolios concentrated in a small geographic area, a substantial downturn in the local economy can have a serious adverse effect on bank performance, regardless of the ability of bank management to make good loans and run an efficient organization; conversely, a booming economy may allow even poorly run banks to prosper. Nonetheless, bank managers clearly have the potential to influence the performance of the organizations they manage through their decisions regarding the composition and size of the bank's balance sheet and the quality of their oversight of the bank's operations. Past research has little to say about the extent to which small bank performance is affected by economic factors beyond banks' control versus the actions of bank management.² In an attempt to begin to fill this gap in the literature, this paper examines the determinants of differences in small bank performance over the period from 1993 to 2011.

We find that community bank profitability is strongly positively related to bank size; that local economic conditions have significant effects on bank profitability; that the quality of bank management matters a great deal to profitability, especially during times of economic stress; and that small banks that make major shifts to their lending portfolios tend to be less profitable than other small banks.

The remainder of the paper is organized as follows: Section 1 reviews the previous literature examining differences in performance among small banks and between small and large banks. Section 2 presents the empirical model to be estimated and section 3 describes the data used in our analysis. Section 4 discusses results and section 5 briefly describes our conclusions.

1. Previous Research

Much more research has examined the differences in performance between small banks and large banks than has examined the differences among small banks. This literature defines "small banks" or "community banks" in a variety of ways, but most commonly it uses total

² Kupiec and Lee (2012) provide some evidence on this point.

assets to measure size, and the most common asset size cutoff for small banks is \$1 billion.³ This cutoff counts the great majority (91 percent, as of year-end 2012) of all banks in the United States as small banks, but these banks collectively hold only about 11 percent of domestic banking assets.

Performance Differences among Small Banks

One result found in multiple studies is that the very smallest banks underperform other community banks, where performance is measured by return on assets, return on equity, risk-adjusted profits or an efficiency ratio. (See, for example, Barrett and Brady, 2001; DeYoung, Hunter and Udell, 2004; FDIC, 2012; Hein, Koch and MacDonald, 2005; Kupiec and Lee, 2012; Stiroh, 2004; Whalen, 2007.) Some of these studies restrict their samples to banks that have been in existence for at least a decade, so this result cannot be attributed to the typically low profitability of new banks. Rather, the poorer profitability of the smallest community banks (defined as those under \$100 million in assets) is generally attributed to operation at less-than-efficient scale.

Another result found in more than one previous study is that an institution's geographic concentration in one local market does not seem to adversely affect bank performance. Yeager (2004) finds that small banks located solely in markets that have suffered major adverse economic shocks in the 1990s perform nearly as well as small banks in other markets, where a major economic shock is defined as an increase in the local unemployment rate of at least 4 percentage points in one year. Although this result may hold on average in more normal times, the recent economic crisis resulted in numerous bank failures in markets that suffered major declines in real estate values. Emmons, Gilbert and Yeager (2004) simulate bank mergers and find substantial potential for risk-reduction benefits from an increase in bank scale, but not from an increase in geographic scope. Zimmerman (1996) finds that small banks with more branches have a larger proportion of problem loans and lower return on assets than more geographically restricted small banks. Stiroh (2004) finds few diversification benefits for small banks across

³ Some research uses \$500 million in assets as the cutoff between small (or community) and large banks, and a few papers use even smaller levels, such as \$300 million or \$400 million, but these lower cut-offs usually refer to assets from the 1990s or earlier. Two papers by Barrett and Brady (2001 and 2002) use definitions that are not based on a specific size, defining community banks as all commercial banks other than the 1000 largest; this translated into banks under about \$330 million in assets at the time of these studies.

broad activity classes, but some within lending and noninterest activities. He concludes that small banks should diversify within their areas of expertise, because that could lead to economies of scale.

Among small banks, loan charge-off rates increase with size, despite the presumed greater diversification in the portfolios of larger community banks, according to both DeYoung, Hunter and Udell (2004) and Hein, Koch and MacDonald (2005). Whalen (2007) classifies small banks into different strategic groups based on the composition of their loan portfolios and finds that changes in lending strategies tend to lower bank profitability relative to small banks that maintain a consistent lending focus over time. He finds that banks specializing in business real estate have the highest rates of return, but that other banks have higher risk-adjusted returns; the first result might change if the recent recession were included in the sample period. Kupiec and Lee (2012) find that specializing lending in any one area reduces return on assets, as does increased use of brokered deposits and other high-cost sources of funds. They find that a high loans-to-assets ratio increases profitability, but that a rapid increase in loans lowers profitability. DeYoung (1999) finds that bank age influences the risk of small-bank failure, with banks most likely to fail when three to five years old, after their initial capital is depleted and before profits have grown to sustainable levels.

Hannan and Prager (2009) consider the relationship between the profitability of community banks that operate primarily within a single geographic banking market and the geographic scope of their rivals. Small single-market banks that operate in rural markets where a greater share of market branches are owned by competitors that conduct most of their banking business outside of that local banking market are found to be more profitable, on average, than other small banks. In addition, an increased presence of competitors that conduct most of their banking business in other geographic markets leads to an attenuation of the positive relationship between market concentration and profitability. The latter result is attributed to the likelihood that the pricing policies of multi-market banks are not as tied to local conditions as are the pricing policies of single-market banks. No similar results are found in urban markets, which generally have a much larger number of competitors than rural markets.

In a unique study comparing community banks that thrived through the recent recession to community banks that suffered downgrades in their supervisory ratings, Gilbert,

Meyer and Fuchs (2013) find that maintenance of conservative lending principles is one common factor among thriving banks. Beyond this commonality, however, successful community banks follow a variety of business plans tailored to their local communities. The benefits of basic, conservative banking are also noted in FDIC (2012), which finds that many community banks that switched lending strategies – often in search of growth opportunities – subsequently suffered financial setbacks.

Behavior and Performance Differences between Small and Large Banks

In contrast to the rather limited research on differences among small banks, there is a substantial literature on differences in behavior and performance between small and large banks. Compared to large banks, small banks, on average, grow faster; rely more heavily on core deposits; have higher capital ratios; have lower return on equity but not necessarily lower return on assets; and have fewer credit card loans and fewer securitized loans, but more small business and agricultural loans. (See, for example, Barrett and Brady, 2001; Barrett and Brady, 2002; and DeYoung, Hunter and Udell, 2004.) Berger, Miller, Petersen, Rajan and Stein (2005) find that large banks tend to lend at larger distances and for shorter terms than small banks, while small banks are more likely to lend to credit-constrained firms and to be the exclusive lenders to small borrowers. Ely and Robinson (2001) show that, over time, large banks have competed increasingly with small banks for the smallest business loans, probably due to the increased use of credit scoring. An extensive FDIC (2012) report finds that community banks are more dependent on net interest margin than larger banks; larger banks have both higher non-interest income and non-interest expenses than community bank, but the former difference tends to be larger, as reflected in lower expense ratios for larger banks.

Despite all of these differences in behavior, Clark and Siems (2002) find little difference in measured average efficiency between small and large banks after accounting for the effect of off-balance-sheet items.⁴ This paper, like some other research, finds that differences in efficiency among banks of a given size far exceed differences in either costs or profits due to variation in firm size or scope; Berger, Hunter and Timme (1993) review this literature. A

⁴ Note that most of the literature measures efficiency for traditional commercial banking products and does not consider economies of scale in, e.g., securitizations or investment banking activities. Clark and Siems (2002) attempt to account for such activities by including direct or indirect measures of noninterest income that arises from off-balance-sheet activity.

Group of Ten (2001) report reviews a number of studies from several countries that find that economies of scale in banking are significant, but are exhausted at a very small firm size, in the range of \$100 million to \$300 million in assets. Other research reviewed by Berger, Dick, Goldberg and White (2007), however, finds that significant economies of scale in banking persist well beyond this point, with the minimum point of the average cost curve estimated to be in the vicinity of \$10 billion in assets, or even as high as \$25 billion. The dramatic variation in findings across studies is attributable to several factors, including differences in the time periods and geographic areas covered, differences in sampling approaches, and differences in methodologies. Papers using data from the 1990s typically find greater scale economies than those using data from the 1980s. Some studies under-sample small banks in order to focus on differences among the largest banking organizations; these studies may fail to discern cost differences – or the lack of such differences – among community banks. Studies also differ in their methodology, with some research estimating complex functional forms and other work using distribution-free estimation methods.

A considerable body of research focuses on the different roles that community banks and larger banks play in the provision of credit to small businesses. One strand of this research focuses on the consolidation that has occurred in the U.S. banking industry over the past 25 years and its implications for small business credit availability. A number of studies examining the effects of bank size on the supply of small business credit, including Berger, Kashyap and Scalise (1995), Strahan and Weston (1996) and Keeton (1995), find that larger banks tend to allocate a smaller portion of their assets to small business lending than do smaller banks. Berger, Saunders, Scalise and Udell (1998) and Strahan and Weston (1998) focus specifically on bank consolidation and find that the ratio of small business loans to assets declines following mergers and acquisitions. Berger, Saunders, Scalise and Udell (1998), Avery and Samolyk (2004) and Berger, Bonime, Goldberg and White (2004) have found evidence that the potential reduction in small business lending following mergers is mitigated in local markets by other banks expanding their supply of small business credit and by the creation of *de novo* banks in the affected markets.

Another strand of research focuses on identifying differences between the production technologies used in small business loan underwriting by community banks and those used by larger banks and empirically measuring the importance of firm-lender relationships for the

provision of credit to small businesses. The hypothesis underlying this research is that relationships are more important to community banks than to larger banks. Relationship lending is defined as a technology dependent on the process of acquiring “soft” (qualitative) information that is gathered by the loan officer through interactions with the firm, its owner, and the community. Stein (2002) and Berger and Udell (2002) argue that large, hierarchical organizations are better able to deal with “hard” (quantitative) information than soft information because hard information can more easily be transmitted up through the various levels of hierarchy than can soft information. A number of empirical studies, including Petersen and Rajan (1994, 1995), Berger and Udell (1995), Cole (1998), Berger, Miller, Petersen, Rajan and Stein (2005) and Cole, Goldberg and White (2004), find that relationships are important determinants of credit availability for small businesses. Most of this research uses data from the Federal Reserve Board’s Survey of Small Business Finances, which was last conducted in 2003.

A final group of relevant studies attempts to determine whether large banks face a disadvantage in lending to small businesses in general or to opaque small businesses in particular. Berger, Rosen and Udell (2007) find that the probability of a small business borrowing from a bank in a particular size class does not decline with bank size, but is roughly proportional to the market share of that size class. Several studies, including Berger, Rosen and Udell (2007), Jayaratne and Wolken (1999) and Prager and Wolken (2008) find that the most opaque small businesses (i.e., very young firms, very small firms, or firms with poor credit histories) are no less likely to obtain credit products from large banks than are more transparent small businesses. These results suggest that small banks do not hold a comparative advantage in lending to small businesses or to opaque small businesses.

2. Empirical Model

We begin by examining the relationship between community bank profitability and various bank and market characteristics, over the period from 1993 through 2011. Because of the very different character of urban and rural markets, we estimate our model separately for the two types of markets. We estimate separate equations for each of four time periods –1993-96, 1997-2001, 2002-06 and 2007-2011– in order to allow for changes over time in the model parameters while keeping the number of equations manageable. Within each period, we pool annual observations for each bank. These groupings divide the 19 years covered into four

distinct periods with regard to community bank earnings: a period of stability from 1993 to 1996; a period of moderate decline from 1997 to 2001; a return to stability from 2002 to 2006; and a period of dramatic decline followed by partial recovery from 2007 to 2011. We also estimate a separate cross-sectional equation for each year during 2007-2011 so that we can more closely examine the factors affecting community bank profitability during and after the recent financial crisis.

Our basic model is of the form:

$$\begin{aligned}
 \pi_i = & \beta_0 + \beta_1 \ln POP_i + \beta_2 PCI_i + \beta_3 UNEMP_i + \beta_4 HHI_i + \beta_5 MS_COMM_i \\
 & + \beta_6 YRS_DEREG_i + \beta_7 AGE_i + \beta_8 \ln ASSETS_i + \beta_9 MGT_RATING_i \\
 & + \beta_{10} SCORP_i + \beta_{11} RE_LOANS_i + \beta_{12} CONSTR_LOANS_i + \beta_{13} C\&I_LOANS_i \\
 & + \beta_{14} CNSMR_LOANS_i + \beta_{15} BROKERED_DEP_i + \beta_{16} BIG_SHIFT_i + \varepsilon_i.
 \end{aligned} \tag{1}$$

The model is estimated using OLS with robust standard errors, allowing correlation among the error terms for an individual bank. π_i is a measure of bank i 's profitability in the year under consideration. We employ two different measures of profitability--return on equity (ROE) and return on assets (ROA). The two sets of results are generally quite similar, so we report only the former in our tables and highlight those occasions when the two profitability measures yield different results.

Right-hand-side variables can be grouped into two categories: those that are outside the control of bank management and those that are affected by managerial decisions and behavior. Exogenous factors include market characteristics (demographics, banking market structure, and regulatory history) and firm age. Demographic variables included in our model are the natural logarithm of market population ($\ln POP$), per capita income for the market (PCI), and the annual average of the monthly unemployment rate for the market ($UNEMP$). Banking market structure is captured by two variables: the deposit-based Herfindahl-Hirschman Index (HHI)⁵ and the share of market deposits held by community banks, excluding the deposits of the observed bank (MS_COMM). YRS_DEREG indicates the number of years since the state in which the bank is

⁵ The HHI is the sum of squared deposit market shares, divided by 10,000 to yield a value between zero and one.

located removed restrictions on intrastate branching.⁶ *AGE* is the number of years since the bank opened.

Factors that may be affected by bank managers' decisions and actions include firm size, management quality, organizational form, and portfolio composition. Bank size is measured by the natural logarithm of total banking assets (*ln ASSETS*); management quality is measured by the management component of the bank's most recent CAMELS rating (*MGT_RATING*);⁷ and organizational form is accounted for with *SCORP*, a dummy variable equal to one if the firm is an S-corporation.⁸ The portfolio composition variables reflect the shares of the bank's total loans that are (i) secured by real estate (*RE_LOANS*), (ii) used to fund construction projects (*CONSTR_LOANS*), (iii) commercial and industrial loans (*C&I_LOANS*) and (iv) consumer loans (*CNSMR_LOANS*); and the share of the bank's total liabilities accounted for by brokered deposits (*BROKERED_DEP*). We also include a variable (*BIG_SHIFT*) that indicates whether at least one of the four loan shares included in the estimated equation has changed by more than 10 percentage points over the previous three-year period.

We have no prior expectations regarding the signs of the coefficients on *ln POP* or *PCI*. The unemployment rate is expected to have a negative correlation with bank profitability. We expect banks in more concentrated markets to be more profitable and banks in markets in which they face more small-bank competitors and fewer large bank competitors (i.e., markets with higher values of *MS_COMM*) to have lower profits than banks that face less competition from firms that are similar to themselves.⁹ Other research has found surprisingly strong lingering effects on bank profitability from state restrictions on geographic expansion of banks. These restrictions limited the amount of competition faced by banks within their local markets. We expect a negative coefficient on *YRS_DEREG* because a higher value of this variable would

⁶ For small banks, intrastate branching restrictions are more relevant than interstate banking laws, because most interstate acquisitions are by large banking organizations targeting other large banking organizations.

⁷ Bank supervisors employ a five-point system known as CAMELS to rate the safety and soundness of their banks, with 1 being the best rating and 5 being the worst. Ratings are assigned for each of six components (Capital, Assets, Management, Earnings, Liquidity, and Sensitivity to market risk), and the six components are then combined to generate a composite rating for the bank.

⁸ An S corporation generally does not pay corporate income taxes on its profits; rather, the shareholders pay income taxes on their proportionate shares of the corporation's profits. As a result, S-corporation status is related to firm profitability. Banks were first permitted to become S corporations in 1997.

⁹ The latter expectation is supported by the work of Adams, Brevoort and Kiser (2007), Cohen and Mazzeo (2007), Hannan and Prager (2004) and Kiser (2004), among others.

indicate that banks in that state have had more time to adjust to the removal of legal restrictions on competition. We expect that older firms that remain under \$1 billion in assets are likely to be poorly run firms or located in markets where growth (and profit) opportunities are limited. This censoring of our sample, in which successful firms grow out of the sample, should result in a negative coefficient on bank age.

Most research on scale economies in banking finds such economies for small banks up to a level of assets ranging from \$100 million to \$25 billion, so that at least some of the smaller banks in our sample should be below minimum efficient scale; as a result, we expect a positive correlation between firm size and firm performance. We expect the coefficient on *MGT_RATING* to be negative, as higher values of this variable indicate lower management quality. S-corporations should be more profitable than other banks purely for accounting reasons, as S-corporations shift taxes from the bank to the individual owners of the bank.

We have no prior expectations regarding the signs of the coefficients on the loan portfolio share variables (*RE_LOANS*, *CONSTR_LOANS*, *C&I_LOANS* and *CNSMR_LOANS*), and expect that they might vary over time. With regard to *BIG_SHIFT*, the indicator that the bank has made a substantial change in the composition of its loan portfolio over the past 3 years, we expect a negative coefficient based on the view that community banks tend to be most profitable when they stick to familiar activities. Finally, we expect the measure of brokered deposits to have a negative coefficient, because such deposits tend to be more expensive than core deposits.

3. Data

Our sample covers the period from 1993 through 2011 and is restricted to community banks. We define a community bank as a bank or thrift that (i) belongs to a banking organization with less than \$1 billion in total banking assets (measured in constant 2005 dollars), and (ii) derives at least 70 percent of its deposits from a single local banking market.¹⁰ The latter condition allows us to tie the bank to a particular local market, and to assume that conditions in that market are likely to affect the bank's performance. Markets are defined as Metropolitan Statistical Areas or rural counties, using the 1999 definition for Metropolitan Statistical Areas.

¹⁰ As a robustness check, we will consider alternative definitions of community bank in the next iteration of this paper.

Banks less than two years old are dropped from the sample because *de novo* banks generally have atypical levels of profits, capital and other characteristics.

Bank size and balance sheet data and information regarding S-corporation status come from the financial reports that banks and thrifts file with federal regulators. Bank age comes from the Federal Reserve System's National Information Center. Demographic data come from US Census Bureau and unemployment data come from the Bureau of Labor Statistics. The HHI and the percentage of market deposits held by community banks other than the observed bank are calculated from the Federal Deposit Insurance Corporation's Summary of Deposits and the Office of Thrift Supervision's Branch Office Survey; the HHI includes thrift deposits at 50 percent weight.¹¹ Time since deregulation (*YRS_DEREG*) is from Amel (1995). Confidential ratings of the quality of bank management (*MGT_RATING*) come from reports filed by bank examiners. To mitigate concerns about the potential endogeneity of the management rating, we use the most recent rating as of the start of each observation year.

Table 1 presents the mean values for each variable used in the analysis, for both urban and rural markets for each time period covered by our analysis. A few patterns in these data are worth noting: (i) community banks operating in rural markets consistently earn higher average rates of return on assets than do community banks operating in urban markets, but do not necessarily earn higher rates of return on equity; (ii) both urban and rural banks experienced sharp declines in profitability in 2007-11; however, the profit declines were more severe for urban banks than for rural banks; (iii) the average community bank operating in an urban market is considerably larger, in terms of assets, than the average community bank operating in a rural market; (iv) community banks operating in rural markets are, on average, 20 to 25 years older than their urban counterparts; (v) rural markets are, on average, highly concentrated, while concentration levels in the average urban market are below the level of concern to antitrust authorities; (vi) a larger percentage of deposits in rural markets are controlled by community banks than in urban markets; (vii) a larger percentage of community banks are S Corporations in rural markets than in urban markets; (viii) throughout the sample period, urban community banks' average portfolio shares of real estate-backed loans and construction loans were higher

¹¹ This is the standard approach taken by the Federal Reserve System when screening bank merger applications for competitive effects. Alternative measures of market concentration will be included in the next iteration of this paper.

than those of rural community banks, and both types of banks saw these shares rise over time; (ix) throughout the sample period, urban community banks' average portfolio shares of consumer loans were lower than those of rural community banks, and both types of banks saw these shares decline over time; (x) urban community banks were more reliant on brokered deposits throughout the period than were rural community banks, and both types were more reliant on brokered deposits toward the end of the sample period than they had been at the beginning.

4. Results

Tables 2 through 5 present the results from estimating equation 1, for rural and urban markets, using ROE as the dependent variable. Tables 2 and 3 show the pooled results for each of the multi-year periods; tables 4 and 5 show the individual-year results for 2007 to 2011. We first examine the results for the variables that are outside the control of bank management, and then turn to the variables that reflect managerial decisions and actions.

The estimated coefficient on *ln POP* varies in sign and significance across the four time periods, but is negative and highly significant in both urban and rural markets during the period encompassing the financial crisis and its aftermath. The estimated coefficient on *PCI* is negative and significant in every time period, with the exception of the last 5-year period in urban markets; within that period, the negative relationship holds in all markets for 2007-08, but not for 2010-11 in urban markets or for 2009 or 2011 in rural markets. It is unclear why community bank profitability would be negatively correlated with this measure of local economic conditions, but one possibility is that wealthier individuals have more alternatives to community banks from which they can receive financial services, and the financial crisis might have sent wealthier individuals back to community banks and the safety of insured deposits. Consistent with expectations, the coefficient on the unemployment rate is always negative and often significant. Interestingly, in rural markets, the absolute value of the coefficient on the unemployment rate increases sharply in the most recent 2 periods, while in urban markets it decreases.¹²

¹² When ROA is used as the dependent variable, the coefficient on the unemployment rate for banks operating in rural markets is positive and insignificant in the first two periods and negative and significant in the last two periods.

The estimated coefficient on *HHI* is positive and marginally significant for rural markets during the third period, and is otherwise statistically insignificant. However, when ROA is used as the dependent variable, the estimated coefficient on *HHI* is positive and significant in the first three periods for rural markets and the first two periods for urban markets; this result may indicate that banks in less competitive markets earn higher profits, but reinvest those profits into equity, thereby reducing their ROE. The estimated coefficient on *MS_COMM*, the share of market deposits held by other community banks, is generally negative (as expected), but often statistically insignificant; these results are similar to those of Hannan and Prager (2009).

The estimated coefficient on *YRS_DEREG*, the number of years since intrastate branching deregulation, is negative and significant in rural markets in every period, though its absolute value appears to have declined in recent years. In urban markets, the coefficient is negative in the first three periods, but statistically significant only for the first two. This suggests that the lingering effects of previous state branching restrictions in limiting bank competition may have disappeared in urban markets by the mid-2000s, but not in rural markets. The estimated coefficient on *AGE* is almost always negative and significant in the rural equations, but its sign varies over time in urban markets.¹³ This suggests that in smaller markets with few growth opportunities, older community banks are less profitable than younger community banks, consistent with expectations. However, in urban markets, community banks may be able to find niches that enable them to maintain profitability as they age.

Turning now to the variables that may be influenced by bank managers' behavior, bank size is significantly positively related to profitability in both rural and urban markets, in every time period; as noted in the literature review, this result is consistent with a large number of previous papers. Our measure of management quality is strongly related to profitability in every period, for both urban and rural banks, with the expected negative sign.¹⁴ The relationship is noticeably stronger in 2007-11 than in earlier periods, with the absolute value of the estimated coefficient increasing from 2007 to 2009 and returning to more normal levels by 2011. This suggests that the importance of management quality in influencing bank performance was

¹³ In rural markets, *AGE* has negative but insignificant coefficients in 2009 and 2010. When the dependent variable is ROA, the coefficient on *AGE* is still negative in each period for rural markets, but not significant except in the first period. In urban markets, the coefficient is always positive, with statistical significance in three of the four periods.

¹⁴ Recall that higher values of this variable indicate poorer management quality.

magnified during the financial crisis. As expected, S-corporations earn significantly higher profits in every period than do other banks.¹⁵

The estimated coefficients on the portfolio share variables show different patterns in the urban and rural regressions. In rural markets, the estimated coefficient on the portfolio share of real estate loans is positive during the first three five-year periods, but turns negative in 2007-11. Looking at the individual-year estimates, we see that there is a strong negative relationship between the real estate loan share and profitability in 2010. In urban markets, the estimated coefficient on *RE_LOANS* turns negative after the first five-year period and becomes very large in magnitude and highly significant in 2007-11. In both rural and urban markets, higher portfolio shares of construction loans are associated with higher profitability during the first three time periods and in 2007, but this relationship changes dramatically in 2008. The estimated coefficient on the construction loan share variable is strongly negative in each year from 2008 through 2011, though it diminishes somewhat in magnitude in urban markets in 2011. In rural markets, we see a strong positive relationship between the portfolio share of C&I loans and *ROE* at the beginning of the study period, which diminishes over time and reverses sign in 2008. In urban markets, the coefficient on *C&I_LOANS* is also positive at the beginning of the study period, but it turns negative by the early 2000s. The relationship between the consumer loan share and bank profitability is quite different in rural and urban markets. In rural markets, there is no significant relationship between these variables in the early years, but the relationship becomes strongly positive during the financial crisis. In urban markets, there is a strong positive relationship at the beginning of the time period, which becomes negative in the later years.

In urban markets, the relationship between the share of liabilities comprised of brokered deposits and profitability is generally negative, as expected, with varying coefficient magnitudes and significance; the relationship is strongest in the 2007-2011 period. Kupiec and Lee (2012) find a similar result. In rural markets, the estimated coefficient on *BROKERED_DEP* is positive over the first three periods; it becomes negative and significant in the last period, driven by large, negative coefficients in 2008 and 2009.

¹⁵ *SCORP* is excluded from the equations estimated for the first period because banks were not allowed to become S-corporations until 1997.

In both urban and rural markets, and in every time period, a large shift in portfolio shares ($BIG_SHIFT=1$) is associated with significantly lower profitability; this result parallels the finding of Gilbert, Meyer and Fuchs (2013) that switching lending strategies often leads to financial setbacks. We explore this relationship further by considering the exact nature of the portfolio shift and by allowing the effect of a portfolio shift to vary with management quality. First, we re-estimate equation (1), replacing BIG_SHIFT with a set of eight dummy variables indicating whether the bank experienced an increase or decrease of at least 10 percentage points in the portfolio share for each of four loan types (real estate, construction, C&I, and consumer loans).¹⁶ Interestingly, the coefficients on the indicator variables are almost always negative and often significant. The only significant positive effects are associated with an increase in the share of construction loans during the 2007-2011 period in both urban and rural markets, and a decrease in C&I loans during the first period in rural markets. Thus, large shifts tend to adversely affect community bank profitability, regardless of which portfolio shares are increasing or decreasing.

Given that an increase in the portfolio share of one loan type is, necessarily, accompanied by a decrease in the portfolio share of at least one other loan type, we next consider the correlations among the various large shift indicators. As shown in table 6, the strongest correlations are found between (i) a large increase in the real estate share and a large decrease in the C&I share; (ii) a large increase in the real estate share and a large decrease in the consumer share; (iii) a large decrease in the real estate share and a large increase in the C&I share; and (iv) a large decrease in the real estate share and a large increase in the consumer share. In other words, large portfolio shifts often seem to involve movements between real estate lending and either C&I lending or consumer lending, which may represent commonly used strategies designed to improve bank performance. We investigate the profitability implications of these particular patterns of portfolio adjustment by re-estimating equation (1), replacing BIG_SHIFT with a set of four dummy variables indicating the presence of each of these combinations.¹⁷ Once again, the estimated coefficients on the portfolio shift variables are almost always negative, and often significant.

¹⁶ Results of these estimations are not reported here, but are available from the authors upon request.

¹⁷ Results are not reported here, but are available from the authors upon request.

Our final investigation of the effect of large changes in portfolio composition considers whether the effects of such changes vary with management quality. We thus re-estimate equation (1), adding an interaction term between *BIG_SHIFT* and a dummy variable equal to 1 if the management component of the bank's CAMELS rating is 3 or higher (an indicator of poor management quality). Results from this estimation are reported in tables 7 through 10. In every multi-year period, for both urban and rural markets, the estimated coefficients on both *BIG_SHIFT* and its interaction with the "poor management quality" indicator are negative and statistically significant. In individual year regressions for 2007-11, coefficients are always negative but are often insignificant. Thus, large changes in portfolio composition are associated with significantly lower profitability, and this effect is exacerbated for banks with less-than-stellar management quality ratings.

5. Conclusion

The number and relative importance of small U.S. banks has declined in recent years, but a large number of small banks continue to compete profitably with their larger brethren. Although much attention has focused on the plight of very large financial institutions during the recent financial crisis, community banks have not escaped unharmed. This paper has examined the relationship between community bank performance and a number of bank and market characteristics over 1993-2011.

We find that community bank profitability is affected by a number of factors outside the control of bank management, including such market characteristics as per capita income, the unemployment rate, and, in earlier time periods, the share of market deposits controlled by other community banks. However, managerial decisions regarding portfolio composition and management quality, as measured by the "M" component of a bank's CAMELS rating, also play a very important role in influencing community bank performance. Management quality is particularly important during times of extreme economic stress. The correlations between major portfolio components – including real estate loans, construction loans, commercial and industrial loans, and consumer loans – and profitability vary over time, but we find that large shifts in portfolio composition are consistently associated with reductions in profitability, confirming a widely-held view that community bankers should be cautious about moving into product markets with which they are unfamiliar.

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Table 1: Mean Values of Variables by Market Type and Time Period

Variable	Rural Markets				Urban Markets			
	1993-1996 N = 18742	1997-2001 N = 18911	2002-2006 N = 15361	2007-2011 N = 12628	1992-1996 N = 13492	1997-2001 N = 13150	2002-2006 N = 11897	2007-2011 N = 10465
ROA (%)	1.604	1.482	1.348	0.964	1.436	1.394	1.247	0.431
ROE (%)	16.127	14.369	12.787	8.742	15.444	14.887	12.952	3.678
ASSETS (\$M)	89.075	113.089	131.150	142.563	148.686	189.195	238.770	278.708
AGE	74.172	78.687	81.454	85.339	51.335	56.958	55.712	56.098
POP (1000s)	26.928	27.832	29.116	30.210	2200.856	2286.863	2307.856	2364.037
PCI (\$1000)	17.629	21.645	26.207	32.816	23.534	29.400	35.145	41.313
UNEMP	5.959	4.848	5.375	6.975	5.563	4.090	5.222	9.485
HHI	0.285	0.279	0.272	0.267	0.124	0.134	0.133	0.136
MGT_RATING	2.000	1.720	1.752	1.822	2.150	1.773	1.809	1.990
MS_COMM	0.508	0.438	0.384	0.342	0.357	0.300	0.268	0.241
SCORP	—	0.183	0.351	0.454	—	0.125	0.224	0.278
YRA_DEREG	3.625	6.234	10.333	15.206	7.059	10.799	15.479	20.650
RE_LOANS	0.493	0.531	0.587	0.624	0.630	0.668	0.740	0.775
CONSTR_LOANS	0.017	0.023	0.040	0.048	0.053	0.067	0.114	0.105
C&I_LOANS	0.140	0.142	0.143	0.133	0.180	0.174	0.153	0.143
CNSMR_LOANS	0.169	0.152	0.118	0.093	0.142	0.117	0.073	0.049
BROKERED_DEP	0.003	0.005	0.014	0.012	0.004	0.007	0.025	0.034
BIG_SHIFT	0.318	0.256	0.262	0.229	0.403	0.313	0.365	0.327
RE_SHIFT_UP	0.038	0.015	0.024	0.016	0.070	0.019	0.028	0.023
C&I_SHIFT_UP	0.008	0.004	0.005	0.004	0.019	0.010	0.008	0.007
CONSTR_SHIFT_UP	0.001	0.001	0.004	0.002	0.008	0.005	0.011	0.006
CNSMR_SHIFT_UP	0.005	0.002	0.001	0.001	0.011	0.003	0.002	0.001
RE_SHIFT_DN	0.008	0.002	0.003	0.005	0.020	0.010	0.006	0.008
C&I_SHIFT_DN	0.015	0.004	0.006	0.008	0.044	0.010	0.016	0.015
CONSTR_SHIFT_D	0.001	0.000	0.001	0.012	0.014	0.003	0.004	0.054
CNSMR_SHIFT_DN	0.017	0.007	0.009	0.004	0.028	0.007	0.009	0.004

Table 2: Regression Results for Pooled Years, Rural Markets (Dependent Variable: ROE)

Regressor	1993-1996	1997-2001	2002-2006	2007-2011
LN_ASSETS	1.82 *** (17.91)	1.71 *** (16.33)	2.05 *** (18.58)	2.29 *** (17.36)
AGE	-0.02 *** (-8.06)	-0.02 *** (-6.62)	-0.02 *** (-5.61)	-0.01 *** (-2.80)
LN_POP	-0.32 ** (-2.06)	0.11 (0.73)	0.07 (0.38)	-0.50 *** (-2.77)
PCI	-0.13 *** (-3.26)	-0.15 *** (-4.28)	-0.06 *** (-2.56)	-0.08 *** (-4.68)
UNEMP	-0.04 (-1.06)	-0.06 (-1.44)	-0.28 *** (-4.65)	-14.66 *** (-14.66)
HHI	-0.03 (-0.03)	0.89 (1.09)	1.76 * (1.82)	0.41 (0.42)
MGT_RATING	-0.95 *** (-7.60)	-1.73 *** (-12.74)	-1.90 *** (-12.68)	-3.08 *** (-16.69)
MS_COMM	-1.63 *** (-4.29)	-1.15 *** (-3.11)	-0.40 (-0.98)	-0.23 (-0.50)
SCORP	—	2.48 *** (11.47)	2.94 *** (14.76)	2.59 *** (11.32)
YRS_DEREG	-0.13 *** (-7.43)	-0.08 *** (-6.18)	-0.05 *** (-3.75)	-0.03 * (-1.91)
RE_LOANS	2.44 *** (3.79)	0.06 (0.08)	1.29 * (1.63)	-0.88 (-1.00)
CONSTR_LOANS	24.65 *** (6.61)	14.50 *** (5.71)	7.59 *** (3.95)	-18.02 *** (-7.78)
C&I_LOANS	7.34 *** (6.36)	3.19 *** (2.67)	2.05 * (1.68)	-0.45 (-0.28)
BROKERED_DEP	9.04 * (1.83)	1.58 (0.46)	0.11 *** (6.91)	-9.85 *** (-2.50)
CNSMR_LOANS	-0.13 (-0.14)	-1.84 * (-1.72)	1.79 (1.42)	7.16 *** (4.61)
BIG_SHIFT	-0.69 *** (-4.99)	-1.10 *** (-7.02)	-0.93 *** (-5.38)	-1.54 *** (-6.76)
CONSTANT	14.95 *** (13.34)	14.96 *** (12.40)	9.08 *** (8.25)	13.59 *** (10.90)
N	18742	18911	15361	12628
R ²	0.13	0.14	0.18	0.20

t-statistics in parentheses

*, ** and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively

Table 3: Regression Results for Pooled Years, Urban Markets (Dependent Variable: ROE)

Regressor	1993-1996	1997-2001	2002-2006	2007-2011
LN_ASSETS	1.55 ***	2.18 ***	2.31 ***	1.75 ***
	(11.93)	(17.30)	(18.37)	(10.09)
AGE	0.00	-0.01 ***	-0.01 ***	0.02 ***
	(0.97)	(-3.44)	(-3.13)	(4.29)
LN_POP	-0.07	0.27 **	-0.05	-1.17 ***
	(-0.54)	(2.27)	(-0.44)	(-7.20)
PCI	-0.24 ***	-0.17 ***	-0.11 ***	0.03
	(-5.62)	(-5.88)	(-4.23)	(1.19)
UNEMP	-0.23 ***	-0.33 ***	-0.12	-0.02 **
	(-3.22)	(-3.84)	(-1.03)	(-2.04)
HHI	4.32	1.12	-1.30	-0.04
	(1.54)	(0.45)	(-0.71)	(-0.02)
MGT_RATING	-3.35 ***	-2.99 ***	-2.98 ***	-5.01 ***
	(-18.98)	(-15.78)	(-16.20)	(-22.39)
MS_COMM	-0.73	-1.31	-2.32 ***	0.96
	(-0.89)	(-1.51)	(-2.65)	(0.78)
SCORP	—	4.18 ***	3.91 ***	2.89 ***
	—	(10.92)	(12.73)	(7.54)
YRS_DEREG	-0.19 ***	-0.06 ***	-0.01	0.02
	(-10.18)	(-3.53)	(-0.45)	(1.04)
RE_LOANS	2.23 *	-1.76	-2.42 *	-11.98 ***
	(1.81)	(-1.18)	(-1.63)	(-6.05)
CONSTR_LOANS	21.14 ***	17.40 ***	12.53 ***	-2.94 *
	(9.66)	(10.46)	(10.43)	(-1.68)
C&I_LOANS	4.93 ***	1.98	-2.11	-3.54
	(3.16)	(1.09)	(-1.08)	(-1.38)
BROKERED_DEP	-5.55 **	-9.56 ***	-2.27	-13.55 ***
	(-1.99)	(-2.90)	(-1.04)	(-4.46)
CNSMR_LOANS	7.13 ***	0.73	-2.18	-1.25
	(4.92)	(0.41)	(-1.04)	(-0.41)
BIG_SHIFT	-1.15 ***	-1.68 ***	-1.27 ***	-2.00 ***
	(-5.52)	(-7.68)	(-6.12)	(-6.17)
CONSTANT	20.02 ***	15.24 ***	13.29 ***	20.33 ***
	(11.98)	(8.90)	(7.26)	(8.61)
N	13492	13150	11897	10465
R²	0.18	0.19	0.22	0.20

t-statistics in parentheses

*, ** and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively

Table 4: Regression Results for Individual Year 2007-2011, Rural Markets (Dependent Variable: ROE)

Regressor	2007	2008	2009	2010	2011
LN_ASSETS	1.98 ***	2.32 ***	2.38 ***	2.57 ***	2.65 ***
	(12.84)	(11.20)	(10.66)	(12.07)	(12.49)
AGE	-0.02 ***	-0.01 **	0.00	-0.01	-0.01 ***
	(-4.92)	(-2.40)	(-0.73)	(-1.45)	(-2.94)
LN_POP	-0.44 **	-0.49	-0.64 **	-0.31	-0.89 ***
	(-2.00)	(-1.61)	(-2.00)	(-1.04)	(-3.39)
PCI	-0.10 ***	-0.09 ***	-0.01	-0.13 ***	-0.03
	(-3.39)	(-3.00)	(-0.33)	(-3.35)	(-1.20)
UNEMP	-0.45 ***	-0.44 ***	-0.23 ***	-0.34 ***	-0.44 ***
	(-4.53)	(-4.06)	(-3.03)	(-4.39)	(-5.99)
HHI	2.66 **	1.54	-2.18	0.22	-2.52 *
	(2.22)	(0.93)	(-1.26)	(0.14)	(-1.78)
MGT_RATING	-2.29 ***	-2.20 ***	-4.14 ***	-3.99 ***	-2.46 ***
	(-10.67)	(-7.45)	(-13.96)	(-16.08)	(-11.49)
MS_COMM	-0.71	-0.69	0.99	-0.06	-0.28
	(-1.24)	(-0.89)	(1.22)	(-0.07)	(-0.42)
SCORP	2.74 ***	3.38 ***	3.00 ***	2.38 ***	1.76 ***
	(10.47)	(9.54)	(8.10)	(6.79)	(5.75)
YRS_DEREG	0.00	-0.08 ***	0.00	-0.03	-0.05 **
	(0.17)	(-3.13)	(-0.20)	(-1.44)	(-2.31)
RE_LOANS	-0.02	-1.31	-1.27	-4.36 ***	-1.67
	(-0.02)	(-0.87)	(-0.79)	(-2.82)	(-1.26)
CONSTR_LOANS	3.45 *	-24.02 ***	-43.32 ***	-27.77 ***	-27.71 ***
	(1.70)	(-7.99)	(-11.60)	(-6.84)	(-7.39)
C&I_LOANS	4.37 **	-2.49	-3.91	-6.71 ***	1.94
	(2.43)	(-1.02)	(-1.48)	(-2.71)	(0.89)
BROKERED_DEP	0.58	-20.91 ***	-11.93 ***	-9.86	6.85
	(0.20)	(-6.06)	(-2.61)	(-1.54)	(1.21)
CNSMR_LOANS	1.36	7.21 ***	13.56 ***	4.90 *	3.16
	(0.72)	(2.75)	(4.80)	(1.84)	(1.35)
BIG_SHIFT	-1.35 ***	-0.62	-1.50 ***	-2.07 ***	-2.64 ***
	(-4.25)	(-1.48)	(-3.30)	(-4.94)	(-7.02)
CONSTANT	12.28 ***	12.01 ***	9.39 ***	16.64 ***	12.93 ***
	(7.35)	(5.33)	(3.79)	(7.00)	(6.35)
N	2728	2592	2495	2412	2401
R²	0.19	0.18	0.25	0.26	0.24

t-statistics in parentheses

*, ** and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively

Table 5: Regression Results for Individual Year 2007-2011, Urban Markets (Dependent Variable: ROE)

Regressor	2007	2008	2009	2010	2011
LN_ASSETS	1.99 ***	1.84 ***	1.88 ***	2.15 ***	1.97 ***
	(9.17)	(6.19)	(5.36)	(7.34)	(7.53)
AGE	0.00	0.01	0.03 ***	0.01 **	0.01
	(-0.15)	(0.93)	(3.80)	(1.96)	(1.40)
LN_POP	-0.61 ***	-1.00 ***	-0.88 ***	-1.08 ***	-0.92 ***
	(-2.96)	(-3.67)	(-2.81)	(-4.14)	(-4.10)
PCI	-0.11 ***	-0.15 ***	-0.13 **	0.05	-0.02
	(-2.96)	(-3.14)	(-2.09)	(1.16)	(-0.65)
UNEMP	-0.99 ***	-1.38 ***	-1.20 ***	-0.01	-0.02 *
	(-4.34)	(-5.79)	(-6.64)	(-0.91)	(-1.67)
HHI	-2.68	1.57	0.05	1.55	-2.10
	(-0.80)	(0.36)	(0.01)	(0.37)	(-0.75)
MGT_RATING	-4.02 ***	-4.63 ***	-5.29 ***	-5.79 ***	-4.12 ***
	(-12.80)	(-10.95)	(-11.98)	(-17.92)	(-14.40)
MS_COMM	-0.53	-1.69	1.70	4.82 **	1.10
	(-0.32)	(-0.77)	(0.64)	(2.13)	(0.54)
SCORP	4.24 ***	4.61 ***	2.45 ***	1.98 ***	2.47 ***
	(9.61)	(7.95)	(3.58)	(3.38)	(4.72)
YRS_DEREG	0.12 ***	0.07 *	0.11 ***	0.00	0.03
	(4.57)	(1.86)	(2.48)	(0.03)	(0.95)
RE_LOANS	-6.79 **	-9.46 ***	-11.03 **	-9.72 ***	-13.09 ***
	(-2.35)	(-2.63)	(-2.28)	(-2.74)	(-4.07)
CONSTR_LOANS	9.39 ***	-23.87 ***	-31.37 ***	-23.67 ***	-16.58 ***
	(5.37)	(-8.89)	(-7.77)	(-5.79)	(-4.15)
C&I_LOANS	1.16	-9.38 **	-6.94	-1.21	-5.89
	(0.34)	(-2.16)	(-1.22)	(-0.28)	(-1.51)
BROKERED_DEP	-7.30 ***	-23.24 ***	-14.40 ***	-3.66	4.29
	(-3.35)	(-8.26)	(-3.13)	(-0.82)	(0.89)
CNSMR_LOANS	-2.26	-6.24	-3.87	2.10	-2.58
	(-0.63)	(-1.29)	(-0.63)	(0.44)	(-0.60)
BIG_SHIFT	-1.37 ***	-0.16	-2.80 ***	-2.62 ***	-1.43 ***
	(-3.05)	(-0.26)	(-4.14)	(-4.62)	(-2.90)
CONSTANT	20.92 ***	33.02 ***	30.80 ***	17.41 ***	21.73 ***
	(6.08)	(7.46)	(5.53)	(4.20)	(5.97)
N	2142	2017	2016	2090	2200
R²	0.23	0.27	0.26	0.29	0.21

t-statistics in parentheses

*, ** and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively

Table 6: Correlation Coefficients for Portfolio Shift Variables, by Market Type

Rural Markets

	RE_UP	C&I_UP	CONSTR_UP	CNSMR_UP	RE_DN	C&I_DN	CONSTR_DN	CNSMR_DN
RE_UP	1							
C&I_UP	-0.053	1						
CONSTR_UP	0.107	0.000	1					
CNSMR_UP	-0.032	-0.008	-0.010	1				
RE_DN	-0.082	0.348	-0.014	0.206	1			
C&I_DN	0.375	-0.045	0.073	0.086	-0.034	1		
CONSTR_DN	-0.010	0.019	-0.013	0.001	0.042	0.003	1	
CNSMR_DN	0.252	0.138	0.037	-0.029	-0.017	0.007	-0.005	1
N =74013								

Urban Markets

	RE_UP	C&I_UP	CONSTR_UP	CNSMR_UP	RE_DN	C&I_DN	CONSTR_DN	CNSMR_DN
RE_UP	1							
C&I_UP	-0.077	1						
CONSTR_UP	0.135	-0.010	1					
CNSMR_UP	-0.050	-0.011	-0.029	1				
RE_DN	-0.113	0.483	-0.035	0.307	1			
C&I_DN	0.557	-0.078	0.103	0.082	-0.051	1		
CONSTR_DN	-0.035	0.041	-0.054	-0.009	0.065	-0.006	1	
CNSMR_DN	0.314	0.117	0.044	-0.040	-0.044	0.005	-0.034	1
N = 60383								

Table 7: Regression Results for Pooled Years, Rural Markets (Dependent Variable: ROE)

Regressor	1993-1996	1997-2001	2002-2006	2007-2011
LN_ASSETS	1.82 *** (17.88)	1.71 *** (16.32)	2.05 *** (18.59)	2.28 *** (17.32)
AGE	-0.02 *** (-8.06)	-0.02 *** (-6.61)	-0.02 *** (-5.61)	-0.01 *** (-2.86)
LN_POP	-0.32 ** (-2.04)	0.11 (0.71)	0.07 (0.38)	-0.50 *** (-2.76)
PCI	-0.13 *** (-3.28)	-0.15 *** (-4.30)	-0.06 *** (-2.58)	-0.08 *** (-4.60)
UNEMP	-0.04 (-1.06)	-0.06 (-1.43)	-0.28 *** (-4.64)	-0.56 *** (-14.75)
HHI	-0.02 (-0.03)	0.85 (1.05)	1.77 * (1.85)	0.44 (0.46)
MGT_RATING	-0.86 *** (-6.66)	-1.53 *** (-11.24)	-1.63 *** (-10.52)	-2.80 *** (-15.03)
MS_COMM	-1.62 *** (-4.29)	-1.16 *** (-3.13)	-0.44 (-1.09)	-0.26 (-0.57)
SCORP	—	2.47 *** (11.45)	2.94 *** (14.82)	2.58 *** (11.30)
YRS_DEREG	-0.13 *** (-7.41)	-0.08 *** (-6.20)	-0.05 *** (-3.75)	-0.03 ** (-1.93)
RE_LOANS	2.45 *** (3.81)	0.09 (0.14)	1.35 * (1.72)	-0.82 (-0.93)
CONSTR_LOANS	24.58 *** (6.60)	14.32 *** (5.59)	7.42 *** (3.88)	-18.21 *** (-7.79)
C&I_LOANS	7.35 *** (6.37)	3.16 *** (2.65)	2.04 * (1.67)	-0.44 (-0.28)
BROKERED_DEP	8.96 * (1.81)	2.00 (0.58)	0.11 *** (6.78)	-9.93 *** (-2.46)
CNSMR_LOANS	-0.13 (-0.13)	-1.81 * (-1.70)	1.87 (1.49)	7.26 *** (4.67)
BIG_SHIFT	-0.59 *** (-4.05)	-0.90 *** (-5.79)	-0.64 *** (-3.75)	-1.21 *** (-5.10)
BIG_SHIFT_MGT	-0.56 * (-1.72)	-2.12 *** (-3.62)	-2.40 *** (-4.60)	-2.43 *** (-3.02)
CONSTANT	14.77 *** (13.22)	14.65 *** (12.17)	8.57 *** (7.87)	13.07 *** (10.45)
N	18742	18911	15361	12628
R ²	0.13	0.14	0.19	0.20

t-statistics in parentheses

*, ** and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively

Table 8: Regression Results for Pooled Years, Urban Markets (Dependent Variable: ROE)

Regressor	1993-1996	1997-2001	2002-2006	2007-2011
LN_ASSETS	1.54 ***	2.16 ***	2.30 ***	1.78 ***
	(11.86)	(17.30)	(18.36)	(10.29)
AGE	0.00	-0.01 ***	-0.01 ***	0.02 ***
	(1.00)	(-3.46)	(-3.06)	(4.33)
LN_POP	-0.08	0.27 **	-0.05	-1.17 ***
	(-0.56)	(2.24)	(-0.39)	(-7.21)
PCI	-0.24 ***	-0.17 ***	-0.11 ***	0.03
	(-5.64)	(-5.94)	(-4.29)	(1.18)
UNEMP	-0.23 ***	-0.33 ***	-0.11	-0.02 **
	(-3.21)	(-3.86)	(-0.99)	(-2.10)
HHI	4.04	1.13	-1.15	0.00
	(1.44)	(0.46)	(-0.63)	(0.00)
MGT_RATING	-2.87 ***	-2.55 ***	-2.56 ***	-4.62 ***
	(-14.33)	(-13.50)	(-13.61)	(-18.74)
MS_COMM	-0.76	-1.38 *	-2.27 ***	1.03
	(-0.93)	(-1.60)	(-2.61)	(0.84)
SCORP	—	4.20 ***	3.93 ***	2.92 ***
	—	(11.00)	(12.82)	(7.66)
YRS_DEREG	-0.19 ***	-0.06 ***	-0.01	0.02
	(-10.15)	(-3.51)	(-0.35)	(1.04)
RE_LOANS	2.26 *	-1.74	-2.47 *	-12.02 ***
	(1.83)	(-1.16)	(-1.66)	(-6.10)
CONSTR_LOANS	20.91 ***	17.21 ***	12.20 ***	-3.09 *
	(9.64)	(10.37)	(10.24)	(-1.77)
C&I_LOANS	4.89 ***	1.87	-2.12	-3.71
	(3.15)	(1.02)	(-1.09)	(-1.45)
BROKERED_DEP	-5.54 **	-8.98 ***	-2.49	-13.81 ***
	(-1.95)	(-2.66)	(-1.15)	(-4.50)
CNSMR_LOANS	7.10 ***	0.73	-2.24	-1.42
	(4.93)	(0.40)	(-1.07)	(-0.47)
BIG_SHIFT	-0.56 ***	-1.32 ***	-0.93 ***	-1.53 ***
	(-2.68)	(-6.01)	(-4.51)	(-4.59)
BIG_SHIFT_MGT	-2.23 ***	-3.53 ***	-2.92 ***	-2.18 ***
	(-5.12)	(-4.74)	(-4.72)	(-3.02)
CONSTANT	19.13 ***	14.57 ***	12.56 ***	19.48 ***
	(11.41)	(8.56)	(6.88)	(8.26)
N	13492	13150	11897	10465
R ²	0.18	0.20	0.22	0.21

t-statistics in parentheses

*, ** and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively

Table 9: Regression Results for Individual Year 2007-2011, Rural Markets (Dependent Variable: ROE)

Regressor	2007	2008	2009	2010	2011
LN_ASSETS	1.98 ***	2.32 ***	2.38 ***	2.55 ***	2.66 ***
	(12.81)	(11.18)	(10.65)	(12.00)	(12.52)
AGE	-0.02 ***	-0.01 **	0.00	-0.01 *	-0.01 ***
	(-4.88)	(-2.40)	(-0.67)	(-1.63)	(-3.01)
LN_POP	-0.44 **	-0.48	-0.63 **	-0.33	-0.90 ***
	(-2.00)	(-1.59)	(-1.97)	(-1.10)	(-3.42)
PCI	-0.10 ***	-0.09 ***	-0.02	-0.13 ***	-0.03
	(-3.41)	(-2.99)	(-0.38)	(-3.31)	(-1.19)
UNEMP	-0.46 ***	-0.44 ***	-0.24 ***	-0.35 ***	-0.44 ***
	(-4.56)	(-4.08)	(-3.13)	(-4.51)	(-6.00)
HHI	2.63 **	1.58	-2.12	0.30	-2.50 *
	(2.20)	(0.96)	(-1.23)	(0.19)	(-1.77)
MGT_RATING	-2.21 ***	-2.13 ***	-3.93 ***	-3.54 ***	-2.30 ***
	(-9.60)	(-6.75)	(-12.34)	(-12.72)	(-9.62)
MS_COMM	-0.73	-0.70	0.99	-0.14	-0.27
	(-1.29)	(-0.90)	(1.22)	(-0.18)	(-0.40)
SCORP	2.74 ***	3.38 ***	3.01 ***	2.34 ***	1.75 ***
	(10.46)	(9.54)	(8.11)	(6.69)	(5.73)
YRS_DEREG	0.00	-0.08 ***	-0.01	-0.04	-0.05 **
	(0.17)	(-3.13)	(-0.25)	(-1.50)	(-2.32)
RE_LOANS	-0.02	-1.27	-1.26	-4.16 ***	-1.61
	(-0.02)	(-0.84)	(-0.78)	(-2.70)	(-1.22)
CONSTR_LOANS	3.43 *	-24.13 ***	-43.23 ***	-27.59 ***	-27.72 ***
	(1.69)	(-8.02)	(-11.58)	(-6.81)	(-7.39)
C&I_LOANS	4.36 **	-2.46	-3.92	-6.60 ***	1.96
	(2.42)	(-1.00)	(-1.48)	(-2.67)	(0.90)
BROKERED_DEP	0.61	-20.86 ***	-11.83 ***	-9.88	6.76
	(0.22)	(-6.05)	(-2.59)	(-1.55)	(1.19)
CNSMR_LOANS	1.43	7.27 ***	13.61 ***	5.11 **	3.21
	(0.75)	(2.77)	(4.82)	(1.93)	(1.37)
BIG_SHIFT	-1.27 ***	-0.55	-1.25 ***	-1.42 ***	-2.38 ***
	(-3.88)	(-1.26)	(-2.63)	(-3.12)	(-5.74)
BIG_SHIFT_MGT	-0.87	-0.85	-2.04 *	-3.28 ***	-1.25
	(-0.94)	(-0.67)	(-1.71)	(-3.53)	(-1.49)
CONSTANT	12.19 ***	11.84 ***	9.11 ***	15.92 ***	12.59 ***
	(7.28)	(5.22)	(3.67)	(6.69)	(6.14)
N	2728	2592	2495	2412	2401
R²	0.19	0.18	0.25	0.26	0.24

t-statistics in parentheses

*, ** and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively

Table 10: Regression Results for Individual Year 2007-2011, Urban Markets (Dependent Variable: ROE)

Regressor	2007	2008	2009	2010	2011
LN_ASSETS	2.00 ***	1.84 ***	1.89 ***	2.19 ***	2.00 ***
	(9.19)	(6.20)	(5.38)	(7.47)	(7.62)
AGE	0.00	0.01	0.03 ***	0.01 **	0.01
	(-0.11)	(0.93)	(3.78)	(2.02)	(1.46)
LN_POP	-0.60 ***	-0.99 ***	-0.88 ***	-1.09 ***	-0.92 ***
	(-2.92)	(-3.65)	(-2.81)	(-4.16)	(-4.06)
PCI	-0.11 ***	-0.15 ***	-0.13 **	0.05	-0.02
	(-3.01)	(-3.14)	(-2.12)	(1.18)	(-0.68)
UNEMP	-1.00 ***	-1.38 ***	-1.20 ***	-0.01	-0.02 *
	(-4.37)	(-5.80)	(-6.67)	(-1.04)	(-1.74)
HHI	-2.74	1.63	-0.07	1.49	-2.07
	(-0.81)	(0.38)	(-0.01)	(0.35)	(-0.74)
MGT_RATING	-3.75 ***	-4.55 ***	-4.88 ***	-5.39 ***	-3.76 ***
	(-10.88)	(-9.95)	(-9.69)	(-13.84)	(-11.11)
MS_COMM	-0.51	-1.66	1.76	4.90 **	1.23
	(-0.31)	(-0.75)	(0.66)	(2.16)	(0.60)
SCORP	4.25 ***	4.62 ***	2.48 ***	2.01 ***	2.51 ***
	(9.63)	(7.96)	(3.63)	(3.43)	(4.78)
YRS_DEREG	0.12 ***	0.07 *	0.11 ***	0.00	0.03
	(4.61)	(1.86)	(2.48)	(0.02)	(1.00)
RE_LOANS	-6.65 **	-9.44 ***	-11.10 **	-9.71 ***	-13.41 ***
	(-2.30)	(-2.62)	(-2.30)	(-2.74)	(-4.17)
CONSTR_LOANS	9.24 ***	-23.89 ***	-31.18 ***	-23.40 ***	-16.67 ***
	(5.28)	(-8.89)	(-7.72)	(-5.72)	(-4.17)
C&I_LOANS	1.33	-9.33 **	-7.20	-1.42	-6.36 *
	(0.39)	(-2.15)	(-1.26)	(-0.33)	(-1.63)
BROKERED_DEP	-7.22 ***	-23.23 ***	-15.00 ***	-3.94	4.16
	(-3.32)	(-8.26)	(-3.25)	(-0.88)	(0.86)
CNSMR_LOANS	-2.17	-6.21	-4.09	2.02	-3.10
	(-0.60)	(-1.28)	(-0.66)	(0.42)	(-0.72)
BIG_SHIFT	-1.14 ***	-0.07	-2.41 ***	-2.02 ***	-0.87
	(-2.45)	(-0.11)	(-3.36)	(-3.10)	(-1.53)
BIG_SHIFT_MGT	-2.16 *	-0.76	-2.36 *	-1.86 *	-1.75 **
	(-1.91)	(-0.49)	(-1.65)	(-1.85)	(-1.94)
CONSTANT	20.30 ***	32.80 ***	30.25 ***	16.34 ***	21.12 ***
	(5.88)	(7.37)	(5.43)	(3.90)	(5.79)
N	2142	2017	2016	2090	2200
R ²	0.24	0.27	0.26	0.29	0.21

t-statistics in parentheses

*, ** and *** indicate significance at the 0.10, 0.05, and 0.01 levels, respectively